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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/067,425	02/04/2002	Nicolaas Johannes Anthonius Van Veen	NL 010069	7853

24737 7590 03/01/2004

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER

GEYER, SCOTT B

ART UNIT PAPER NUMBER

2829

DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/067,425

Applicant(s)

VAN VEEN ET AL.

Examiner

Scott B. Geyer

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 4,6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5 and 8-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>0503</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 1-3, 5 and 8-10 in Paper No. 1103 is acknowledged. The traversal is on the ground(s) that there is no serious burden upon the examiner to examine all of the claims, since a thorough search of the prior art would encompass all of the claims. This is not found persuasive because the claims which are were not elected by the applicant encompass other patentably distinct species. Further, the species requirement was presented in this application since the applicant's specification disclosed more than one species of invention, and only a single invention is entitle to a single patent. Therefore, searching multiple inventions is deemed to be a burden upon the examiner. The requirement is still deemed proper and is therefore made FINAL.

The applicant should note that upon finding claim 1 allowable, all dependent claims containing the same allowable subject matter will be entitled to rejoinder.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The references cited within the IDS, received on May 30, 2003, have been considered.

Drawings

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "4" has been used to designate "conductor pattern", "conductors" and "conductive layer", as seen for example on page 4, lines 19-20 of the specification. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. The applicant is urged to review the specification to ensure all figure notations are correct.

Abstract

5A. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph (emphasis added) on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Applicant is reminded of the proper content of an abstract of the disclosure.

5B. A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents,

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particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention (emphasis added) and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

5C(1). Abstract is currently two paragraphs;

5C(2). Delete sentence on lines 11-12, specifically: "Such a method enables...in an economical way";

5C(3). Delete line 15, specifically: "See Fig. 1".

Specification

6. The MPEP provides guidelines for the structure of a specification, specifically MPEP 608.01(a), under "Arrangement of the Specification", which notes utilization of section headings. The arrangement of the specification guidelines of the MPEP are not mandatory, rather they are preferred. Nevertheless, the examiner notes that the instant application is lacking in section headings and suggests that the applicant use them for future applications presented to the Office.

Title

7. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: - - METHOD OF MAKING SURFACE MOUNTABLE SEMICONDUCTOR DEVICE UTILIZING A FLEXIBLE FOIL SUBSTRATE - -.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-3, 5 and 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9A. As to claim 1, the applicant has used altering descriptive for the same part number identified on the drawing. For example, (4) is described as a *conductor pattern* and a *conductive layer*, (3) is described as an *insulating medium* and an *insulating layer*. The applicant is required to re-check all pending claims and amend the claims accordingly to provide a consistent meaning for each drawing figure noted in the claim. For purposes of examination, the examiner will assume the meaning for each drawing figure to be the first meaning given in the set of claims. (For example, for notation (5): the examiner will assume these to be “conductive vias”, as seen on line 7 of claim 1, even though they are later referred to as “apertures” in claim 2, line 2).

9B. In regards to the language of claim 1, being a method claim (i.e. a process having steps to achieve a result), the examiner is confused as to what the method steps actually are. Structural embodiments are described within the claim but distinct steps giving rise to a certain method are lacking. For purposes of examination, the examiner will assume the method of claim 1 as *attaching a chip to an insulating substrate* (wherein the connection regions of the chip attach to the conductor pattern of the insulating medium through vias).

9C. Claims 2, 3, 5, and 8-10 are dependent upon claim 1, and thus necessarily contain all of the same limitations as claim 1.

9D. As to claim 10, the applicant should note that this is merely a product-by-process claim. The examiner does not understand from claim 10 the particular product limitations the applicant wishes to claim. For purposes of examination, the examiner will assume claim 10 to recite any semiconductor device that can be mounted to any surface.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

11. Claims 1, 2, 8 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Kwon et al. (6,235,552 B1).

11A. As to **claim 1**, Kwon et al. teach a chip 102 as seen in figure 15 having connections (104, 108) attaching to an electrically insulating medium (124) with conductor patterns (122,116). The attaching is seen in figure 16. Figure 17 shows a substrate (110), which is removed subsequent figure 18.

11B. As to **claim 2**, Kwon et al. teach vias (126), as seen in figure 12. The chip is attached to the substrate and conductor patterns through these vias, as is seen in subsequent figures. Solder (128) is introduced into the vias in a subsequent step, but prior to the step of attaching the chip to the electrically insulating medium substrate. As can be seen in figure 18, the chip connections (104,108) are electrically connected with the conductor patterns (122, 116) through the solder (128).

11C. As to **claim 8**, Kwon et al. teach a solid photo-resist material (e.g. polyimide) as the electrically insulating medium (124) (see figure 12 and column 4, line 27).

11D. As to **claim 9**, Kwon et al. teach polyimide as the electrically insulating medium (124) (see figure 12 and column 4, line 27) and Kwon et al. also teach copper as the material of the conductor patterns (122) (see figure 12 and column 4, line 23).

11E. As to **claim 10**, Kwon et al. teach a semiconductor device which is suitable for surface mounting as evidenced by the solder balls (136) in figure 19.

Allowable Subject Matter

12. Claims 3 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. (*The applicant is reminded that*

for proper incorporation of allowable subject matter, the entire claim must be incorporated.)

The prior art of record and to the examiner's knowledge does not teach or render obvious, at least to the skilled artisan, the instant invention regarding:

the method of utilizing detachably secured substrates, cited as (7) and (9), as recited in claim 3, in combination with the other claimed elements; or

the method of utilizing an electrically insulating fixing agent, cited as (12), which determines the distance between the chip and the flexible foil as recited in claim 5, in combination with the other claimed elements.

Conclusion

13. The following references are introduced as prior art of record not relied upon but pertinent to the applicant's invention: Imasu et al. (6,492,737 B1) and Jimarez et al. (6,225,206 B1).

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott B. Geyer whose telephone number is (571) 272-1958. The examiner can normally be reached on weekdays, between 10:00am - 6:30pm. E-mail: scott.geyer@uspto.gov

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571) 272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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SBG
February 9, 2004

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2/11/04